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Atty. Docket No. [illegible]IP-Z

#16
Brief
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IN THE UNITED STATES PATENT AND TRADEMARK OFFICE
BEFORE THE BOARD OF PATENT APPEALS AND INTERFERENCES

In re application of

Francis C. Carroll — Group Art Unit 3728

Serial No. 09/027,867 — Examiner Marie Patterson

Filed: February 23, 1998

For: SPORTS SHOE CLEATS

OIPE
JC55
DEC 29 1999
PATENT & TRADEMARK OFFICE

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APPEAL BRIEF TRANSMITTAL

Hon. Commissioner of Patents and Trademarks
Washington, D. C. 20231

Sir:

Attached hereto are three (3) copies of the BRIEF ON APPEAL for the above-identified application.

Also attached is our check in the amount of $300.00 [or $150.00, small-entity] in payment of the brief fee as provided by 37 C.F.R. 1.17(f). Any additional fees necessary to effect the proper and timely filing of this Brief may be charged to Deposit Account No. 26-0090.

Respectfully submitted,

Jim Zegeer

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Date: December 29, 1999

In the event this paper is deemed not timely filed, the applicant hereby petitions for an appropriate extension of time. The fee for this extension may be charged to Deposit Account No. 26-0090 along with any other additional fees which may be required with respect to this paper.

Atty. Docket No.: 2734-CIP-Z

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE
BEFORE THE BOARD OF PATENT APPEALS AND INTERFERENCES

In re application of
Francis C. Carroll
Serial No. 09/027,867
Filed: February 23, 1998
For: SPORTS SHOE CLEATS

Group Art Unit 3728
Examiner Marie Patterson

OIPE JC55
DEC 29 1999
PATENT & TRADEMARK OFFICE

BRIEF ON APPEAL

Hon. Commissioner of Patents & Trademarks
Washington, D. C. 20231

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Sir:

This is appeal is directed to the decision dated April 29, 1999 of the Primary Examiner finally rejecting Claims 1, 2, 5, 6, 9, 10, 15, 16 and 21 (all reproduced on the Appendix attached hereto) of the above-identified application.

I. The Real Party in Interest

The real party in interest is Green Keepers, Inc.

II. Related Appeals and Interferences

There are no related appeals or interferences.

III. Status of the Claims

Claims 1, 2, 5, 6, 9, 10, 15, 16 and 21 are pending in the application. All other claims have been cancelled.

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IV. Status of the Amendments

An amendment filed April 13, 1999 overcame the rejection of Claim 9 under 35 U.S.C. §112.

V. Summary of the Invention

The invention is directed golf shoe cleats, and Figures 2, 8a and 9 are reproduced to the left hereof for convenience of reference.

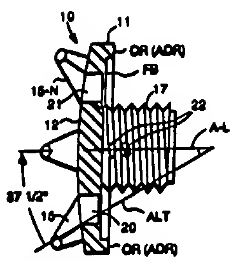


FIGURE 8A

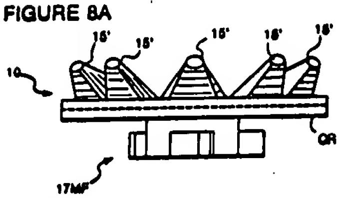
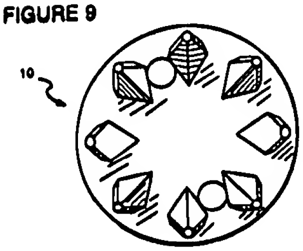


FIGURE 9



A body member 11 has an inner face with a shoe mounting member (threaded as in Figure 2 or with a quick locking feature 17 MF as shown in Figure 8a). The shoe mounting member has an axis AL which is perpendicular to the inner face and projects outwardly from the inner face and is adapted to secure the cleat in a receptacle in the golf shoe upon rotation of the shoe mounting member in the receptacle. The outer face of the body member has a plurality of shaped traction teeth 15 projecting outwardly around the perimeter of the outer face with each traction tooth having an outer traction surface with each outer traction surface having an outward

angulation relative to the axis AL to provide lateral stability and enhanced traction through the plane of a golf swing.

An anti-debris ring OR (ADR) is formed on the inner face of the body member and prevents the outer edge of the body member from separating from the shoe sole to thereby preclude the entry of debris between the inner face and the shoe sole.

In the embodiment of Figure 2, the outer face 12 is domed-shaped, and in the embodiment shown in Figure 8, it is planar. In any case, the traction teeth 15 project at an outward angle (37-1/2°) relative to the axis AL of the mounting member to provide lateral stability and through the plane of a golf swing.

VI. Issues

The issues presented for review are as follows:

1. Was the Examiner correct in rejecting Claims 1, 15 and 21 under 35 U.S.C. §103(a) as being unpatentable over Softspikes ("A Unique Holiday Offer" article) in view of Dassler (US 4,375,728)?
2. Was the Examiner correct in rejecting Claim 12 under 35 U.S.C. §103(a) as being unpatentable over the references as applied to Claims 1, 15 and 21 and further in view of conventional knowledge as evidenced by Gehring (US 3,856,065) or Holmes (US 4,734,002)?
3. Was the Examiner correct in rejecting Claims 2, 5 and 9 under 35 U.S.C. §103(a) as being unpatentable over the references as applied to Claims 1, 15 and 21 and further in view of Kelly (US 5,321,901) or Jordan (US 4,014,114).

4. Was the Examiner correct in rejecting Claims 6 and 10 under 35 U.S.C. §103(a) as being unpatentable over the references as applied to Claims 2, 5 and 9 and further in view of either Johnson (US 4,327,503) or Kataoka (US 5,321,913)?

5. Was the Examiner correct in rejecting Claim 16 under 35 U.S.C. §103(a) as being unpatentable over the references applied to Claims 1, 15 and 21 further in view of either Johnson (US 4,327,503) or Kataoka (US 5,321,913)?

VII. Grouping of Claims

The claims stand or fall together.

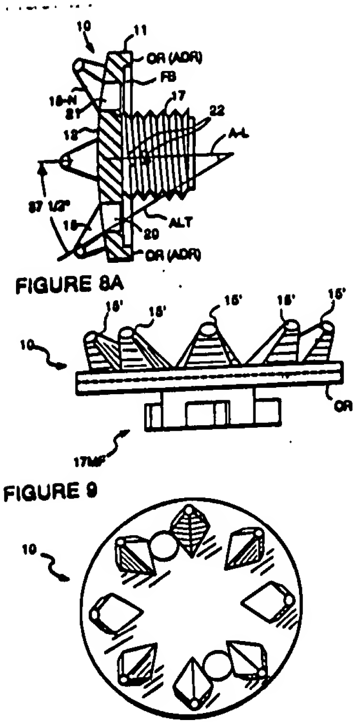
VIII. Argument

The rejection of Claims 1, 15 and 21 under 35 U.S.C. §103(a) as being unpatentable over the Softspikes article in view of Dassler is clearly in error. The Examiner contends that Dassler shows a cleat with the threaded stud and a plurality of peripheral teeth. The Softspikes teeth <u>do not</u> angle outwardly. The Examiner contends that Dassler teaches outwardly angled "teeth" (2 - 4) (Dassler calls them "arms") of a cleat (1); and then contends that it would have been obvious to outwardly angle the teeth of the Softspikes article as taught by Dassler to increase cushioning and to provide traction and skid resistance in all directions.

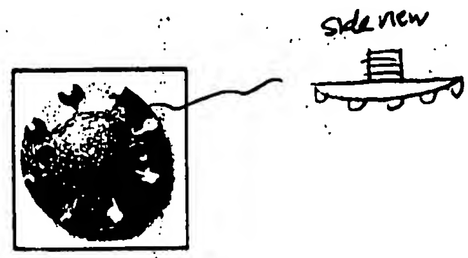
The Softspikes article cleat including the side view apparently sketched by the Examiner in the reference, Figures 1 -

13 of Dassler and appellant's golf shoe cleats are reproduced in reduced form for convenience of reference as follows:

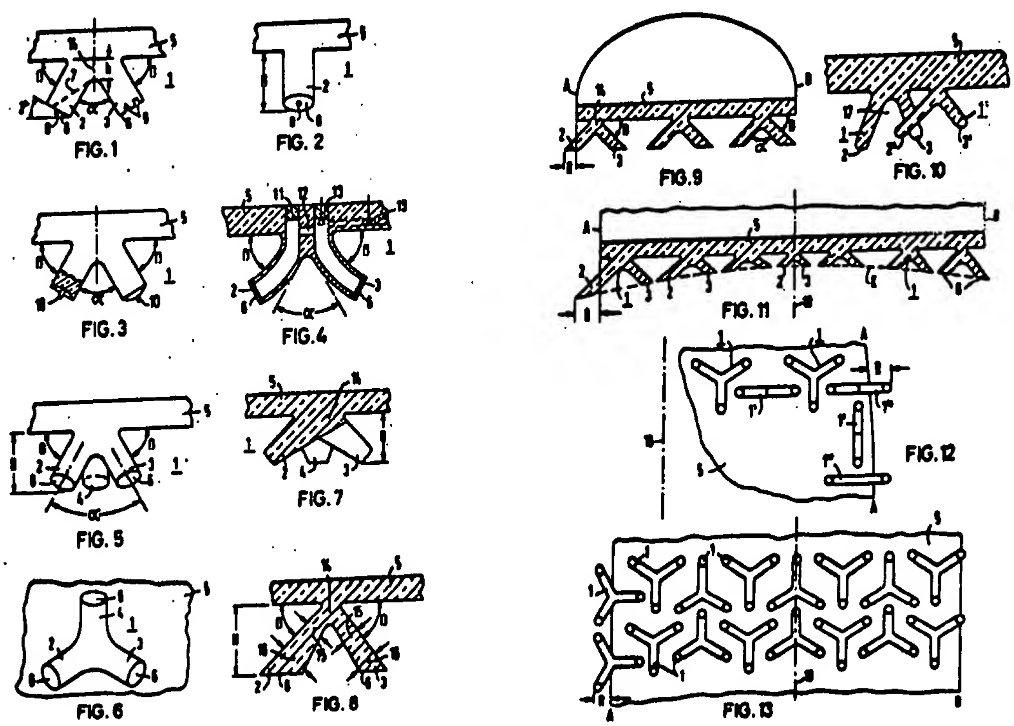
APPELLANT'S GOLF CLEAT



SOFTSPIKES ARTICLE GOLF CLEAT



DASSLER REFERENCE (US 4,375,728)



All claims on appeal are directed to golf shoe cleats in which there is a body member with a shoe mounting member projecting from one face of the body member for securing the cleats in a receptacle

of a golf shoe upon rotation of the cleat and a shoe mounting member into the receptacle. The claims require a plurality of traction teeth projecting outwardly around the perimeter of the outer face of a body member, and each traction tooth having as an outer traction surface at an <u>outward angulation</u> relative to the <u>central axis of the cleat</u> "<u>to provide lateral stability and enhanced traction through the plane of a golf swing</u>" (Claim 1).

The rejection of all claims in the application is predicated on the correctness of modifying the Softspikes article cleat teeth with the arm angulations of Dassler.

It is clear that the Softspikes article shows a cleat with a threaded stud (e.g. a mounting member) and a plurality of peripheral teeth and that the Softspikes article teeth <u>do not angle outwardly</u>. Like all prior art golf cleats (many of which are depicted in the attached charts), the Softspikes article teeth project <u>STRAIGHT DOWN</u>. Dassler does not have anything to do with golf shoe cleats, let alone a cleat with a mounting for rotation into a socket or receptacle on the sole of a golf shoe.

Although the Examiner has characterized Dassler's arms as "teeth", they are in reality multiple <u>spring</u> arms for providing <u>cushioning</u> and <u>shock-absorption</u> to a sole of a sports shoe. Dassler is expressly directed to a <u>sole</u> for a running shoe made of <u>rubber</u> or other material having <u>elastic</u> properties in which there is provided a sole base having a plurality of <u>resiliently flexible cleats</u> with the cleats having arms projecting outwardly from the

surface and at least some of the cleats having arms which are connected together and to the outer surface of the base by an intermediate portion 14 of the cleat (which may be eliminated.) The arms of each cleat extend away from the sole base in directions diverging from the intermediate portions relative to each other forming acute angles with the sole base. Note in the embodiment of Figure 4 of Dassler, the arms 2, 3 are hollow and interconnected by an internal system of passages 12 so that the arms can be supplied with pressure medium and the elasticity of the arms can be regulated in small steps by adjusting internal pressure of the pressure medium. As described in column 3, lines 190 - 21 of Dassler, the arm elasticity can be regulated in small steps by adjusting the internal pressure of the pressure medium. Thus, each arm acts like a bent spring to provide sufficient shock-absorbing effect.

Dassler's reference to "relatively hard and therefore wear resistant" in column 1, line 43 is noted. What Dassler proposes <u>is relatively hard</u>, for example, <u>when compared to cotton and wool but is extremely soft</u> when compared to the golf shoe cleat claimed herein and would be entirely inadequate for appellant's use, e.g. golf shoe cleats. Dassler does not contemplate his studs digging in the turf of a golf course at all as he contemplates use on the usual <u>hard surfaces</u> (see column 1, lines 25-32). Indeed, Dassler attributes his skid resistance to the fact that his <u>arms bend over</u> and provide a large surface area (see column 4, lines 26-28).

Dassler's mechanism for providing running traction on hard surfaces is therefore entirely different from that taught by appellant. Appellant's specification specifies a material having a hardness range from 45D to 95D durometer hardness with a preferred hardness of about 55D (which is comparable in hardness to a bowling ball (Exhibit A).

The cleats of Dassler cannot be molded unless the material of which it is molded is made of rubber or other material having elastic properties; otherwise, it could not be extracted from a mold. Moreover, Claim 1 of Dassler expressly states that the sole is for running shoes and made of rubber or other material having elastic properties.

Appellant's traction teeth angle outwardly and provide traction and lateral stability during the rotation of a golfer's arms, torso and hips, around his or her spine (the axis of the swing) during a golf swing. The angle of appellant's teeth is predetermined. However, the axis of Dassler's <u>teeth change because of the great flexibility thereof</u>, and the shock-absorbing bending of the teeth to provide shock-absorbing properties.

Thus, it is respectfully submitted that Dassler does not teach or suggest the combination proposed by the Examiner, and obviously the straight-down teeth of the Softspikes article does not provide any teaching or suggestion to make the proposed combination.

Attached is a five-page charting of a large body of prior art of spikes or cleats. In each one of these disclosures (the chart

was previously submitted to the Examiner), the teeth or spikes essentially are pointed straight downward, vertically relative to the sole to achieve better penetration, and do not angle outwardly. Thus, there is no suggestion in the art to make the combination of the Softspikes article and Dassler as proposed by the Examiner. The only outwardly inclined teeth of a golf shoe cleat is shown in appellant's disclosure.

With further reference to Dassler, reference is again made to the shock-absorber affect. Dassler states:

> The multiple-arm studs or cleats are extensible in the manner of a shock absorber also and results in excellent lateral stability, which is particularly advantageous when running along curves in sports competition. Additionally, due to the shock-absorberlike extensibility of the multiple-arm studs or cleats, the angle between said arms and the angle between the arms and the sole varies on load application and release, so that dirt particles cannot be retained in the wedge-shaped recesses formed between the arms. Therefore, the sole of the invention provides for a definite self-cleaning effect. (Column 1, lines 54-64, emphasis added.)

Thus, the purpose of bending of the arms or angulation of the arms of Dassler's cleats is to achieve this shock-absorbing quality. If the angles are close to 90°, they would be compressing rather than bending the arms for this can be visualized with respect to any one of Figures 1 - 8 of Dassler, but Figure 7 is reproduced to the left hereof for exemplary purposes. In Figure 7, we

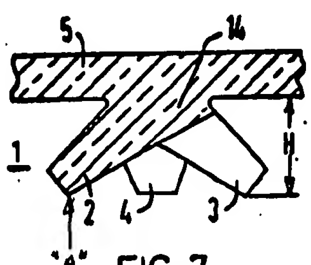


FIG.7

added an arrow "A" indicating the bending force applied tending to bend the arm and achieve the shock-absorbing effect sought by Dassler.

Thus, Dassler does not seek shallow, non-damaging penetration or piercing of the turf surface but rather seeks to have his teeth bend because he wants the shock-absorbing and cushioning function on hard surfaces. His much softer material provides this shock-absorbing and cushioning function. Golf shoe cleats on the other hand are much of much harder material. As noted earlier, appellant's cleats are molded from polyurethane having a hardness range from 45D to 95D durometer hardness with a preferred hardness being of 55D durometer.

Appellant respectfully submits that when Dassler is considered for all that it teaches, it is seen that the combination of references proposed by the Examiner is not supported by the references -- the Softspikes article teaches vertically extending traction teeth and which is what the vast bulk of the art teaches as exemplified by the attached chart. Dassler, on the other hand, does not teach a golf cleat but rather teaches that due to the "shock-absorberlike extensibility of the multiple-arm studs or cleats, the angle between said arms and the angle between the arms and the sole varies on load application and release...[so as] to provide a self-cleaning affect" in addition to the shock-absorbing affect. This bending of the arms of Dassler to provide shock-absorbing when running on hard surfaces would not be adaptable to

use in golf cleats. Moreover, the golf swing itself is one that seeks to avoid untoward movement at the feet, such as may be caused by the bending of teeth during the golf swing.

Claims 2, 5 and 9 stand rejected as being unpatentable over the Softspikes article and Dassler, further in view of Kelly or Jordan. As shown above, appellant has demonstrated that the Softspikes article modified by Dassler is not suggested or taught by the art but is really a hindsight reconstruction of these references in view of appellant's disclosure and requires one to ignore the rest of the art. The adding of Kelly and Jordan to the Softspikes article modified by Dassler is neither suggested nor taught by these references. These claims require an anti-debris ring formed on the edge of the inner planar surface which tends to prevent the edge of the cleats from separating from soles of golf shoes thereby precluding the entry of debris. At the same time, when the cleat is snugged down, the pressure causes the ring to more tightly hug the shoe sole thereby further precluding the entry of debris. Kelly's rim 24 (the purpose of which is not disclosed) appears to butt against annular anchoring flange 4. Jordan's track shoe cleat rim 7 provides a clamping surface to provide frictional resistance at a distance from the screw axis to provide a large amount of resistance to external turning (e.g. the same purpose as appellant's thread fillets). Jordan only speaks of resisting dirt or other foreign matter accumulation <u>between the spikes</u>.

The rejection of Claims 6 and 10 as being unpatentable over the Softspikes article, Dassler, Kelly or Jordan further in view of Johnson or Kataoka is clearly in error. Appellant has demonstrated above why the Softspikes article, modified by the shoe sole reference of Dassler, is not suggested by the art and does not make the invention obvious. These claims relate to the pseudo-pyramid shape of each tooth. Neither Kataoka et al nor Johnson relate to golf shoe cleats -- both relate to entire sole configurations of which only a selected tooth merely approaches pseudo-pyramid shape. No prior art golf shoe cleat has appellant's tooth shape resulting in an outward tooth angulation.

Claim 12 stands rejected as being unpatentable over the combination of Softspikes article, Dassler, further in view of Gehring or Holmes. The Examiner contends that it is well known in the art to provide fillets on threaded members to lock the threaded members in place as shown by Gehring or Holmes. Gehring provides a screw which has a plurality of protuberances formed on a threaded shank, which protuberances press against the parent material locking the screw in place. There is no teaching or suggestion that this be a replaceable golf cleat or that it is equivalent of the fillets on appellant's golf cleat thread.

CONCLUSION

In conclusion, the Examiner has erred in rejecting Claims 1, 2, 5, 6, 9, 10, 15, 16 and 21 and should be reversed.

Respectfully submitted,

Jim Zegeer

Jim Zegeer, Reg. No. 18,957
Attorney for Appellant

Attachments:
Exhibit A
APPENDIX (Claims on appeal)
Chart

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Date: December 29, 1999

In the event this paper is deemed not timely filed, the applicant hereby petitions for an appropriate extension of time. The fee for this extension may be charged to Deposit Account No. 26-0090 along with any other additional fees which may be required with respect to this paper.

APPENDIX

1. A golf shoe cleat comprising a body member having an outer face and an inner face, shoe mounting member having an axis AL which is perpendicular to said inner face and projecting outwardly from said inner face and adapted to secure said cleat in a receptacle in said golf shoe upon rotation of said shoe mounting member in said receptacle,

a plurality of shaped traction teeth projecting outwardly around the perimeter of said outer face, each traction tooth having an outer traction surface, each outer traction tooth surface having an outward angulation relative to said axis AL to provide lateral stability and enhanced traction through the plane of a golf swing.

2. The cleat defined in Claim 1 wherein said inner face has a peripheral edge spaced from said shoe mounting member and an anti-debris ring formed integrally with said body member and projecting from said inner face.

5. A golf shoe cleat comprising a body member having a dome-shaped outer face and a planar inner face, a shoe attaching member projecting outwardly from said inner face having an axis AL perpendicular to said planar inner face, an annular anti-debris ring formed on the edge of said planar inner face,

a plurality of shaped traction teeth projecting around the perimeter of said main body member, each traction tooth having an outer traction tooth surface, each said outer traction tooth surface having an outward angulation relative to said axis AL to provide lateral stability and traction through the plane of a golf swing.

6. The cleat defined in Claim 5 wherein aid traction teeth are pseudo pyramid-shaped.

9. The golf cleat defined in Claim 5 wherein said threaded stud has a helical thread extending from the base of said main body member outwardly and an at least one plastic member filling a portion of said thread so as to prevent loosening of said cleat during use.

10. A golf shoe cleat comprising a main body member having a dome-shaped outer face and a planar inner face, shoe attachment means projecting outwardly from said inner face,

a plurality of pseudo pyramid-shaped teeth projecting around the perimeter of said main body member, each said pseudo pyramid-shaped teeth having an outward angle to provide lateral stability and traction through the plane of a golf swing, said teeth being in a low profile to reduce damage to putting green surfaces,

said body member having an anti-debris ring on the peripheral edge of said planar inner face.

15. A golf shoe cleat comprising a main body member having a dome-shaped outer face and a planar inner face,

a mounting member projecting vertically outwardly from said inner face, said main body member having a circular perimeter,

a plurality of perimeter traction teeth circumferentially spaced around said circular perimeter of said main body member, each perimeter traction tooth having an outward angled outer traction tooth surface to provide lateral stability and traction through the plane of a golf swing.

16. The golf shoe cleat defined in Claim 15 wherein said traction teeth are pseudo pyramid-shaped.

21. A golf shoe cleat comprising a body member having an inner face and an outer face, a shoe-attaching member

projecting perpendicularly outwardly from said inner face and said shoe-attaching member having an axis AL,

a plurality of traction teeth projecting around the perimeter of the outer face of said main body member, each traction tooth having an outer traction tooth surface, said outer tooth surface having an outward angulation relative to said axis AL to enhance lateral stability and traction through the plane of a golf swing.

EXHIBIT A

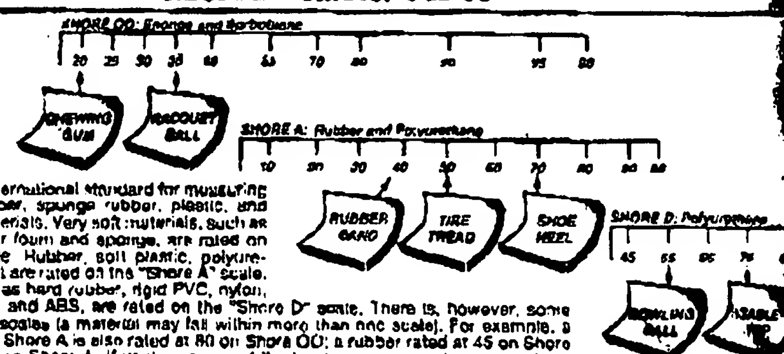
About Rubber

Rubber is used for shock absorption, cushioning, vibration control, insulating, and sealing. Chemical additives used for reinforcement and curing result in the properties outlin[ed in the] chart below.

The ratings shown below are to help you make general comparisons between rubbers. For more detailed information, see individual product presentations.

Rubber	Oil Resistance	Electrical Resistivity	Flame Resistance	Impact Resistance	Abrasion Resistance	Tear Resistance	Weather Resistance	Oxidation Resistance	Ozone Resistance	Major Attributes
Buna-N (nitrile) (pages 2915-2916)	Excl	Poor	Poor	Good	Good	Fair	Poor	Good	Fair	Excellent resistance to m... and vegetable oils.
Butyl (page 2917)	Poor	Excl	Poor	Fair	Good	Good	Very Good	Excl	Good	Low permeability to air. Ex... dielectric properties.
EPDM (ethylene propylene-diene-methylene) (page 2917)	Poor	Excl	Poor	Good	Good	Good	Very Good	Excl	Excl	General purpose rubber w... excellent weather resistan...
ECH (epichlorohydrin) (page 2917)	Excl	Good	Poor	Fair	Good	Fair	Good	Good	Very Good	Excellent resistance to fu... stands extremely low temp...
Gum Rubber (page 2918)	Poor	Excl	Poor	Good	Excl	Good	Poor	Good	Fair	Very resilient with high te... strength and excellent a... abrasion resistance.
Hypalon (page 2917)	Good	Excl	Good	Fair	Excl	Fair	Excl	Excl	Excl	Excellent weather and aci... resistance.
Latex (natural rubber) (page 2918)	Poor	Excl	Poor	Excl	Excl	Excl	Fair	Good	Poor	Elasticity combined with re... to abrasion and low tempe...
Neoprene (pages 2911-2914)	Good	Very Good	Good	Good	Excl	Good	Very Good	Excl	Excl	General purpose abrasion... rubber with good oil resist...
Polyurethane (page 2920)	Excl	Excl	Fair	Good	Excl	Excl	Good	Excl	Excl	Resists abrasion, tearing, a... Good load-bearing qualitie...
SBR (styrene-butadiene) (page 2917)	Poor	Good	Poor	Excl	Very Good	Fair	Fair	Good	Fair	Excellent impact and very... abrasion resistance.
Santoprene (page 2916)	Good	Excl	Good	Good	Fair	Good	Excl	Excl	Excl	Good oil, solvent, and che... resistance. Weathers well.
Silicone (page 2919)	Fair	Good	Fair	Fair	Poor	Poor	Excl	Excl	Excl	Resistant to chemicals and... and low temperatures.
Sorbothane (page 2920)	Good	Poor	Poor	Excl	Fair	Fair	Good	Good	Poor	Outstanding impact resista... damping qualities.
Vinyl (page 2919)	Good	Not Rated	Poor	Good	Fair	Fair	Good	Good	Good	Good for hot and cold wa... applications.
Viton (page 2916)	Excl	Good	Good	Very Good	Good	Fair	Very Good	Excl	Excl	Resists oil and chemicals a... low and high temperatures.

About Durometer Scales



Durometer is the international standard for measuring the hardness of rubber, sponge rubber, plastic, and other nonmetallic materials. Very soft materials, such as gels and microcellular foam and sponge, are rated on the "Shore OO" scale. Rubber, soft plastic, polyurethane, leather, and felt are rated on the "Shore A" scale. Hard materials, such as hard rubber, rigid PVC, nylon, acrylic, polyurethane, and ABS, are rated on the "Shore D" scale. There is, however, some overlap between the scales (a material may fall within more than one scale). For example, a rubber rated at 30 on Shore A is also rated at 80 on Shore OO; a rubber rated at 45 on Shore D is also rated at 90 on Shore A. If you're unsure of the hardness you need, try one of our hardness sample packs found on pages 2913, 2915, and 2920.

Note: Except where noted, the durometer hardness ratings listed on the following pages have a tolerance of ±5.

Neoprene Rubber

Adhesive-Grade Neoprene Rubber

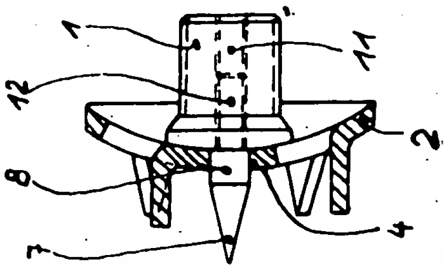
- Tensile Strength: 900 psi
- Durometer Hardness, Shore A: 60 (firm)
- Temperature Range: 20° to +170° F
- Color: Black

Eliminate the grind of surface preparation. This rubber has a matte finish on one si[de...] can apply adhesives without grinding, buffing, cleaning, or using mica dust or relea[se...] The other side has a smooth finish.

Thick.	12" x 12" Sheets	Each	12" x 24" Sheets	Each	36" Wd. Sheeting	Per Lin. Ft.
1/16"	86016K11	$2.77	86016K21	$4.28	86016K31	$4.77
1/8"	86016K13	5.42	86016K23	8.43	86016K33	9.07

Thick.	12" x 12" Sheets	Each	12" x 24" Sheets	Each	36" Wd. S[heeting]	Per...
3/16"	86016K15	$7.88	86015K26	$11.93	86016K36	[illegible]
1/4"	86016K17	10.29	86016K27	16.86	86016K37	[illegible]

Offenlegungsschrift 25 40 426



Figur 4

U.S. #1,422,716

Fig. 4

U.S. #4,366,632

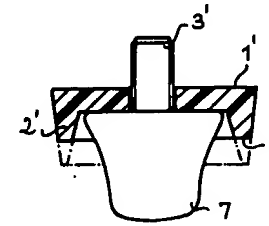
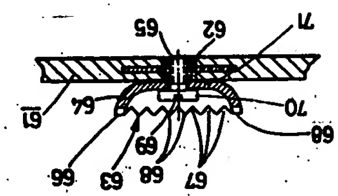


Fig.2

U.S. #3,859,739

Fig. 8



U.S. 5,367,793

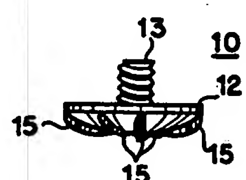


FIG. 4

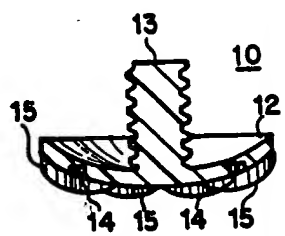


FIG. 5

U.S. #3,656,245

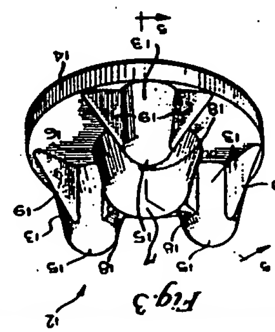


Fig. 3

U.S. 2,803,070

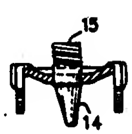


Fig. 10

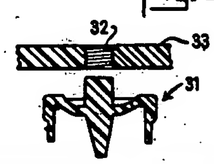


Fig. 11

U.S. #3,583,082

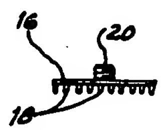
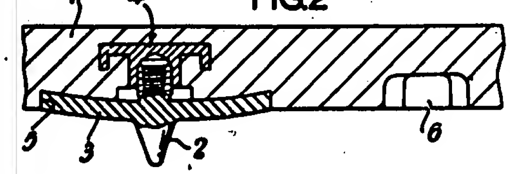


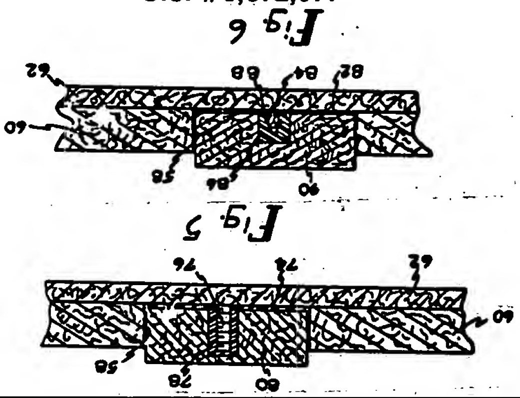
FIG. 2

U.S. #3,487,563

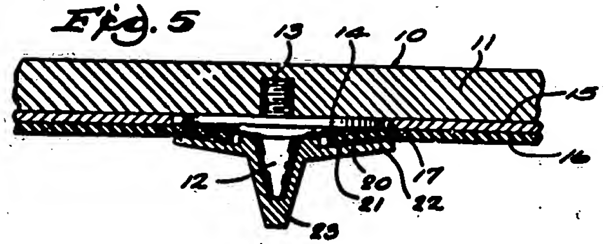
FIG.2



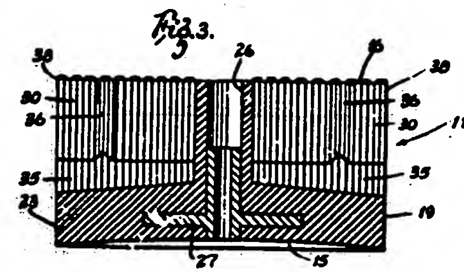
U.S. #3,672,077



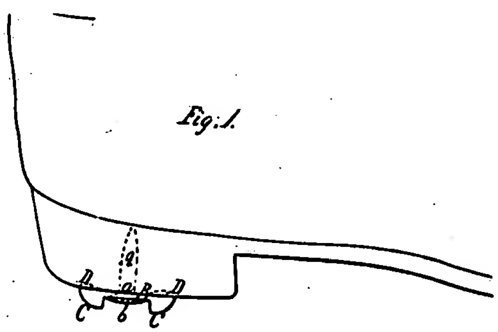
U.S. #3,559,310



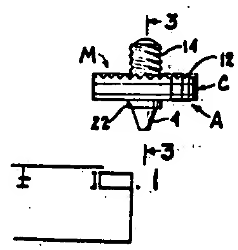
U.S. #3,512,275



U.S. # 39,575



U.S. #2,491,596



U.S. #4,782,604

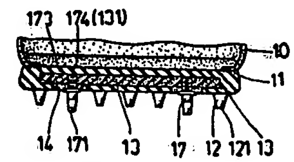


FIG. 3

U.S. #4,587,748

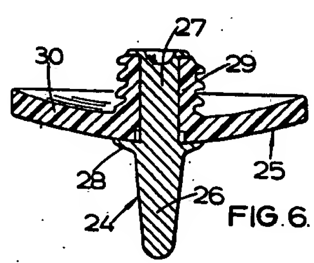


FIG. 6

U.S. #3,818,617

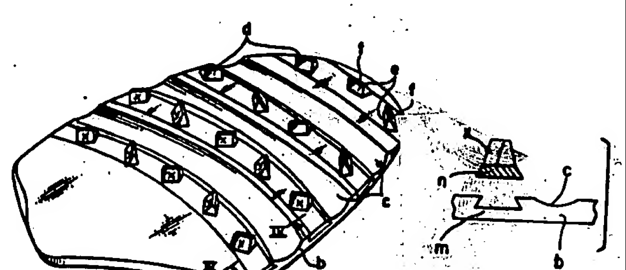


Fig. 2 Fig. 4

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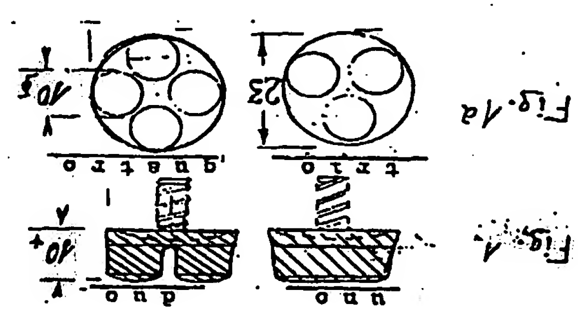
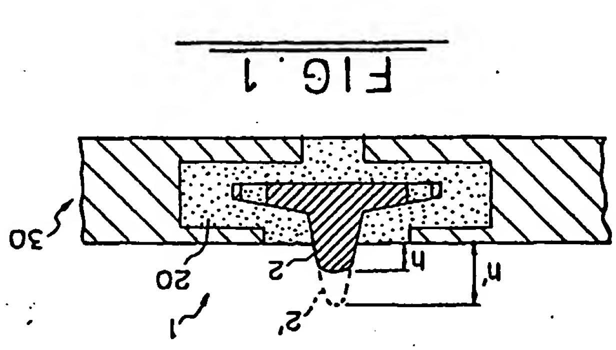
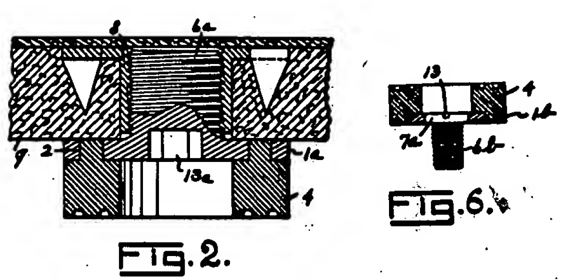


GB 2 248 762 A



U.S. #2,336,632



G.B. No. 6877 (A.D. 1895)
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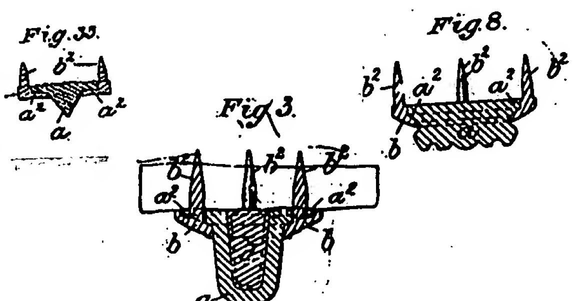

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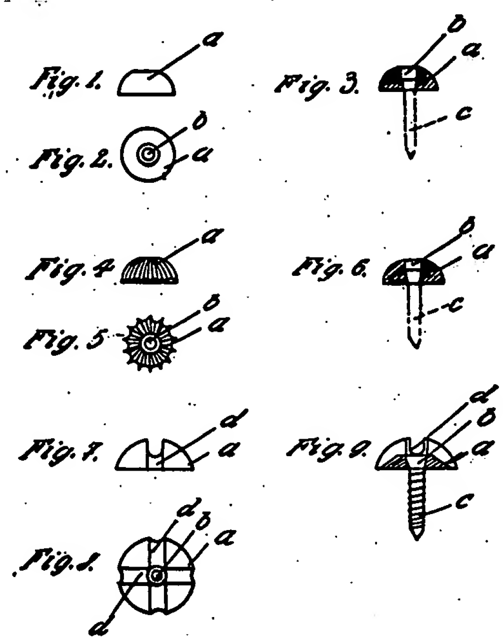

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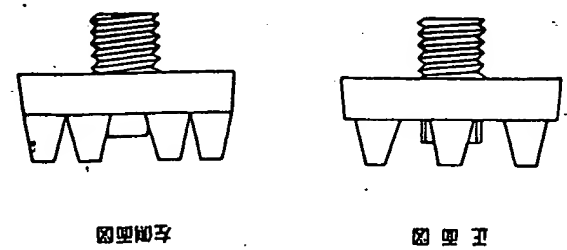

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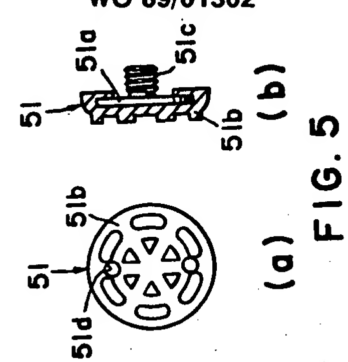

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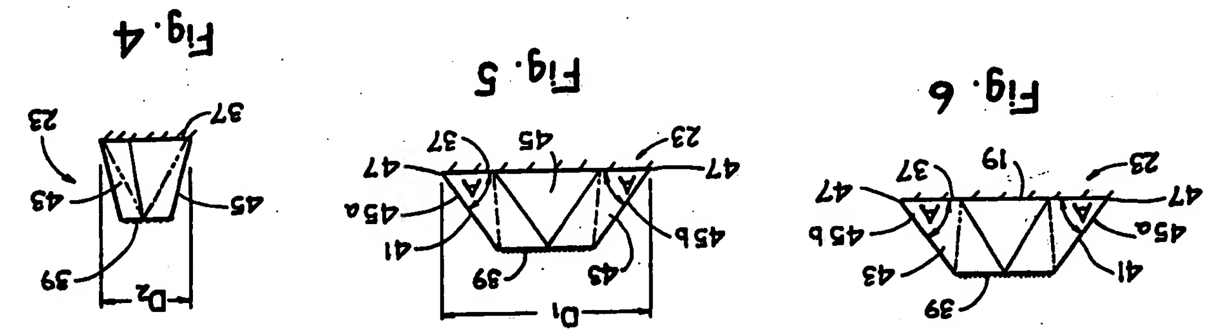

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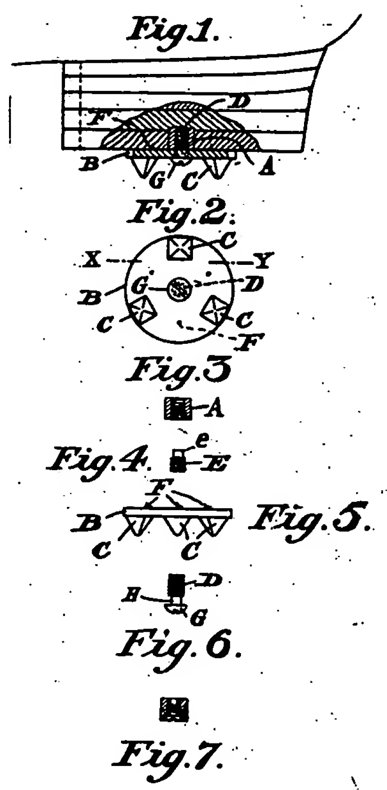

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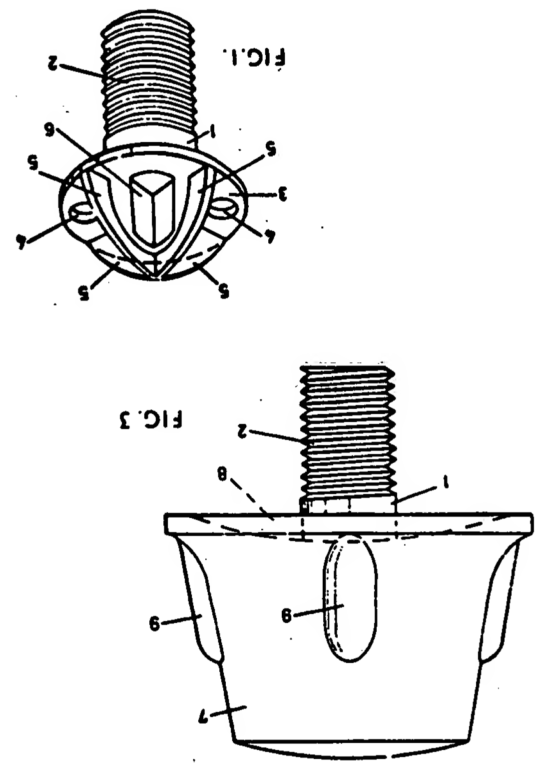

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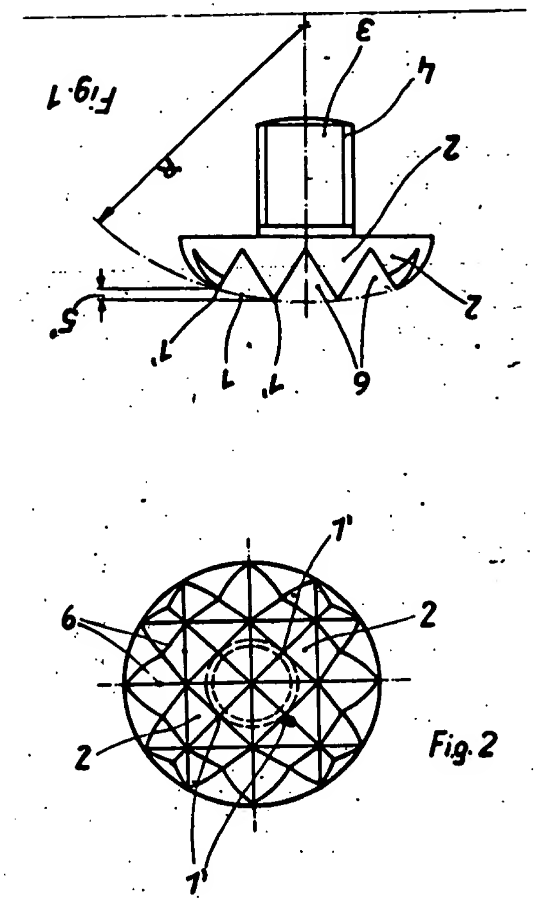

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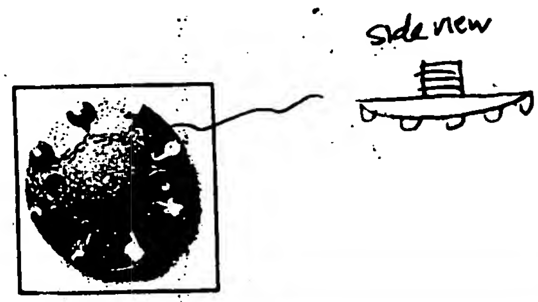

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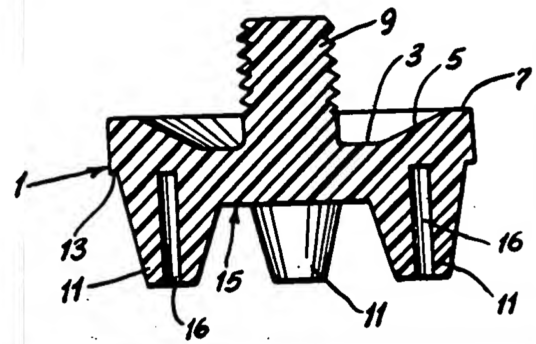
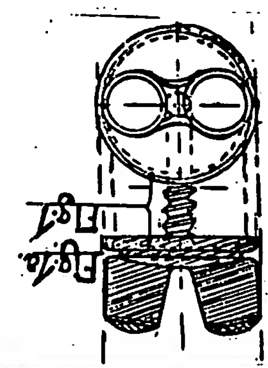


DE 3811-513-A



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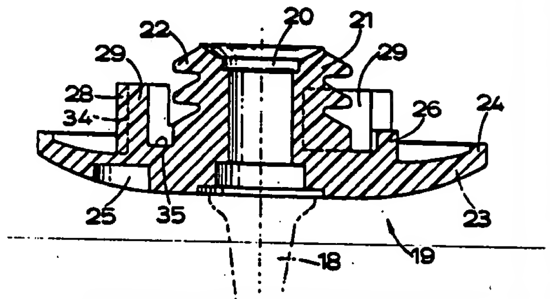

FIG.4.

G.B. No. 1434283